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ABSTRACT

A study examined the relationship between the age at which children started second language learning and their achievement by the end on high school. Subjects were 26 native English-speaking private school seniors. Half had begun French language study in grades K-4 (early starters) and half in grades 5-8 (late starters). Language skills were measured using two standardized French language achievement and advanced placement (AP) tests. Statistical analyses of test results indicate no systematic relationship between starting time and achievement test scores, nor any between AP test scores for the early starters. There was a moderate inverse relationship between AP test scores and late starting. Overall, early starting appeared to have very little influence on increasing second language proficiency by the end of high school in this population. (MSE)

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THE RELATIONSHIP BETWEEN STARTING AGE AND SECOND LANGUAGE LEARNING

BY

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A Thesis Presented to the Faculty of the Dominican College Department of Education in Partial Fulfillment of the Requirements for the Degree of Master of Science in Education: Curriculum and Instruction

San Rafael, California
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Abstract

The purpose of this study was to examine the relationship between starting age and the acquisition of second language proficiency by the end of high school. A total of 26 native English-speaking seniors from a private high school in the San Francisco Bay Area were included in the study. Thirteen of the students began the study of French in grades K-4 (Early Starters) and 13 began in grades 5-8 (Late Starters). A correlation analysis was done between starting age of second language study in French and student scores on two standardized tests, the ETS French Achievement Test and the Advanced Placement French Language Examination. Results indicated no systematic relationship with Achievement Test scores for either group. There was no systematic relationship with AP Test scores for Early Starters, and a moderate inverse relationship for Late Starters. Earlier starting age appeared to have very little effect toward increasing second language proficiency by the end of high school.

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The Relationship Between Starting Age and Second Language Learning

Introduction

The number of political, cultural, economic, and environmental issues that cannot be solved by nations acting unilaterally, but which require cooperative deliberation and global action, is increasing. Understanding and dealing with the complexities of these issues is enhanced by effective communication. Because there are approximately 150 countries in the world, with almost 5,000 official languages, Americans cannot reasonably expect to communicate with people of other nations solely or primarily in English. Increased interaction between individuals from different countries through travel, commerce, and migration across national borders carries with it an attendant necessity to learn to communicate effectively with people who speak a variety of primary languages.

In addition, the United States, and particularly the state of California, is in a period of increasing immigration. The current influx of immigrant peoples from Latin America, Central Europe and a number of Asian countries highlights the need for people in the receiving culture to increase their appreciation and understanding of those from varied cultural and linguistic backgrounds and emphasizes the importance of being able to communicate in more than a single language.

Statement of the Problem

Many people believe that children should be exposed at an early age to a second language on the assumption that acquisition of language skills occurs more easily, naturally, and efficiently in early childhood. That assumption needs to be examined so that schools considering the introduction of second language instruction into their program in the early grades can determine when to begin and what benefits they can expect to gain. They need to know whether investments in increased staffing, curriculum materials and program development, and adding new content to an already crowded curriculum will result in advantages which justify the choice of second language instruction over competing subjects of importance.

This study investigates how foreign language instruction in the primary grades affects student performance in secondary school foreign language courses. Does beginning the study of a second language in the early elementary years make any significant difference in student proficiency in that language by the end of high school?

Rationale

The field of linguistics has contributed to debate on the essential nature of language and how appropriate models of language can be reflected in language teaching. During the past 30 years, there has been movement away from approaches that focused primarily on *linguistic competence*, or the ability to produce

grammatically appropriate sentences as demonstrated through writing and reading, to approaches that focus on *communicative competence,* the ability to use language for purposes of interactive communication in ways that reflect the sociocultural norms of the target speech community (Richards & Nunan, 1992). This growing emphasis on communication as an organizing principle for curriculum is compatible with the goals and outcomes of elementary school foreign language programs.

There are currently a number of prevalent theories of how a second language is learned (Schulz, 1991). *Acculturation Theory* holds that acquisition and proficiency are determined by the degree to which the learner acculturates through social and psychological proximity to the target language group. *Cognitive Theory* sees second language learning as leading through structured practice of various component subskills to automatization and integration of linguistic patterns. It maintains that skills become automatic only after several different phases where they are continually analyzed, practiced, refined, restructured and consolidated. The *Monitor Model* posits that only language that has been "acquired" through a plethora of natural language inputs is available for spontaneous discourse and that formal learning has no effect on acquisition except as a monitor or editor for output. *Interlanguage Theory* claims that a separate interim linguistic system is constructed by the language learner who needs extended comprehensible input to move beyond that early linguistic system toward a close approximation of the target language. *Discourse Theory* emphasizes the importance of active participation in communicative interaction in a naturalistic setting where speech adjustments result from the need to negotiate meaning.

The theory which seems to impact most directly upon the evolution of early childhood second languages is that of *Linguistic Universals*. This theory suggests that a shared, innate, biological linguistic component exists in the genetic make-up of homo-sapiens which accounts for a general set of principles that apply to all languages. It posits an inherent hierarchy of difficulty among universal grammar rules and suggests that those common to the core grammar are more easily acquired than the structures idiosyncratic to a particular language. The theory holds that the child starts with all the principles of the universal grammar available and that the right environmental input at the right time furthers the acquisition process. The existence of a kind of "mental language organ" which begins to atrophy, or a "language learning window" which begins to close, at puberty is theorized, making the introduction of a second language in early childhood seem of critical importance.

A derivative theory, labeled the Pubertal-Critical Period Hypothesis (Morris & Gerstman, 1986), assumes that post-pubertal language learners are limited in their capacity to acquire or learn language, with the facility for speech sharply declining around puberty. This theory draws upon brain research which shows that, with the onset of puberty, the two hemispheres of the brain become lateralized, each developing its own type of functioning, with language localized in the left hemisphere. It is postulated that after this point it becomes increasingly difficult for second language learners to acquire native-like skills, particularly in the area of pronunciation (Richards & Nunan, 1992).

Background and Need

Foreign language teaching in the elementary school suffered a setback in 1974 after the results of a British experiment implied that a later start produced certain competencies in a shorter period of time (Freudenstein, 1990). However, early language instruction has since been introduced into the primary school systems of Austria, Finland, Ireland, Sweden, and Switzerland. In 1989, Italy passed a bill mandating one compulsory foreign language in all primary schools beginning at age 7 (Gerth, 1988). Except for Luxumbourg, there was no compulsory foreign language teaching in primary education in the countries in the European Community, although a number of countries offered languages on a voluntary basis, usually from year 3 or 4 onward (Freudenstein, 1990).

Following an upsurge of interest in foreign language study in the United States after World War II, there was a significant decline in the 1970's due in part to disappointing results, an uncertainty about how and what to teach, and a focus on competing educational concerns (Heining-Boynton, 1990). In the 1980's foreign language education, assisted by public discussions and debates and the reestablishment of the language requirement in institutes of higher education, rebounded with the largest high school and college enrollments of the century (Lange, 1992). By the beginning of the 1990's, foreign language instruction in elementary schools was at unprecedented levels.

A recent survey (Met & Rhodes, 1990) found that 22% of U.S. elementary schools offer foreign language instruction. Approximately 42% of those offering foreign language reported that at least half of their students were enrolled in such classes. In comparing eight states to earlier findings, a 10% increase in elementary school offerings was noted between 1980 and 1987. Baranick (1986) reported that a majority of elementary school principals surveyed believed that the curriculum should include a foreign language component.

The Center for Language Education and Research (CLEAR) sought to address the issue of foreign language instruction by conducting an in-depth, national survey in 1987. Results indicated that twice as many private (34%) as public (17%) elementary schools offered instruction (Oxford & Rhodes, 1987). The top four languages taught were Spanish (68%), French (41%), Latin (12%), and German (10%). Only private schools tended to offer the less commonly taught languages such as Russian, Italian, Hebrew, and Greek.

Many states are requiring the study of a foreign language at the elementary level (Curtain, 1990). Louisiana, for example, has mandated that such study begin in grade 4, and North Carolina schools will have a foreign language requirement for all K-5 students by 1995 (Heining-Boynton, 1991). A 1988 study of the foreign language program in 22 public elementary schools in Michigan (Heining-Boynton, 1988) showed that 46% began instruction in kindergarten, 27% in first and 12% in third grades. Sixty-nine percent of those schools required foreign language for all students, offering one language, and 42% of them continued instruction for seven grade levels.

A variety of elementary school foreign language program models are now reported in schools across the U.S., each resulting in different levels of language achievement (Lindholm & Fairchild, 1988; Pesola, 1988). *Total immersion* is both the newest and the most intensive option. Children who are native speakers of English learn all subject content, including beginning reading, in a foreign language, usually beginning in kindergarten or grade 1. Limited instruction in English usually begins in grade 2 or 3, increasing gradually until grade 6 when as much as 50% of the school day may be taught in the English language. Children who have completed an immersion program attain functional fluency in listening, speaking, reading, and writing in the foreign language, although the development of comprehension and oral production skills are given priority in the early years (Safty, 1990). In addition, their achievement in the basic subject areas is reported to be as good as or better than children in English-only programs (Day & Shapson, 1988; Lindholm & Fairchild, 1988). First developed for French in St. Lambert, Quebec in 1965, the immersion model was adopted for a Spanish program in Culver City, California in 1971 and had spread by 1988 to thirty locations in the U.S. enrolling approximately 10,000 students (Pesola, 1988).

In the *partial immersion model* usually no less than half the school day is spent in the target language. Initial reading instruction takes place either in English or simultaneously in English and the target language. Students in partial immersion also achieve functional proficiency in the foreign language but to a lesser extent.

Foreign Language in the Elementary School (FLES) programs, the most common elementary school program in the 1960's, represented nearly half of all programs at this level by 1988 (Oxford & Rhodes, 1987). Classes typically meet for thirty minutes per day and focus on developing listening and speaking proficiency, understanding and appreciation of the foreign culture, and reading and writing skills. Proficiency attained is proportional to the amount of time available and the intensity of the experience. Children who have had several years of a carefully designed FLES program often acquire good communication skills and can use the language to express their own ideas. *Content-enriched* FLES refers to programs augmented by one or more subject content classes such as P.E., music, art, math, social studies, or science taught in the target language. This creates additional communication opportunities and results in improved fluency.

Foreign Language Experience/Exploration (FLEX) programs have limited goals and were designed primarily to be an introduction to the learning of languages and foreign cultures. They typically last from six weeks to one year and often give children exposure to the language available to them in the middle or secondary schools. English is the primary language of instruction, although a few FLEX programs give a short-term, intensive foreign language experience.

Among the 22% of elementary schools that offered foreign language study in 1990, 86% provided programs aimed at various kinds of introductory exposure to the language, while only 14% offered programs having overall proficiency as one of their

goals. The increasing interest in foreign languages has brought with it a need to determine the most effective instructional goals and approach as well as the most appropriate age at which to begin the process. Secondary schools need to account for the varying levels of foreign language competence that elementary students may have attained and build programs which help them continue their growth in both oral and written communication.

Literature Review

Age-related differences in second language learning.

In an attempt to test the claim that postpubertal students are limited in their capacity to learn language, Morris and Gerstman (1986) conducted a study of 182 children from two suburban cities in lower Westchester County, New York. Public school children, representing a wide range of ages from pre- to postpubescence, and drawn from a variety of ethnic and socioeconomic backgrounds, participated in the study. The subject group included 61 fourth graders, 73 seventh and eighth graders, and 48 eleventh graders, with almost equal gender representation. Each group was composed of approximately equal thirds reading at, above, or well above their grade levels in English.

The study was designed to test the second language learning facility of the three age groups in a language unknown to any of the subjects. Hawaiian was selected as the target language because it is a living language not closely related to English but with orthographic symbols that are readily transferable to the Latin alphabet. Subjects could therefore read as well as hear the stimulus materials. It has

an extant literature to permit certain desired contrastive analyses and was believed to be, along with the culture it represents, inherently interesting and motivating to both the children and young adults tested. Instructional materials were developed to present a first lesson to be followed immediately by a test of retention. A second test would be given one week later.

Lesson materials were pictorially, orthographically, and auditorily presented. They included a separate vocabulary list for referral, were equally divided between syntactic and semantic concepts, and provided for a direct comparison of informal, naturalistic exposure and more formal, linguistic instruction. The instructional materials created were in the form of a cartoon story of a Hawaiian family and another character who presented specific linguistic concepts. The comic book and introductory vocabulary presentation were accompanied by an audio cassette tape-recording of the story with musical background. Samples of the comic book and a full text of the rule-statement for the story-lesson are included in the Appendixes of the study. A copy of the audio tape is available from the experimenters.

Test items attempted to balance syntactic and semantic concepts, easy and hard items, rule and rote learning, and linguistic and metalinguistic tasks to avoid favoring certain groups of learners. Test tasks included exact duplicates of sentences that appeared in the story, sentence items that were rearranged versions, the invention of new sentences from replica words or new vocabulary words, and simple multiple-choice selection of correct sentences. There were also metalinguistic tasks such as anagrams and error detection. The test consisted of 28 items presented in

hierarchical sets ranked according to their level of difficulty. A copy of the entire test is provided in the study's Appendix. No test reliability figures are given. It was believed that the test-post/test methodology would enable the experimenters to explore the Age-Effect hypothesis in a context that would mimic the way most American children learn a second language--by means of classroom instruction.

Analyses of test results indicated a significant advantage for the two older groups of subjects over the fourth grade subjects in overall test-score performance. In particular, the junior high school students evidenced consistent superiority over the fourth grade students at both test sessions. This finding supports the "older-is-better-for syntax-and semantics" positions of a number of researchers. The high school students, however, were not as uniform as the junior high school students with regard to a consistent superiority over their younger counterparts. In addition, the high school subjects were never more successful than the junior high school subjects on any of the Hawaiian subtests at either test session. This is consistent with the "teenage-ceiling effect" encountered by some researchers (Morris and Gerstman,1986).

It is important to note that the local Reading Class or ability group placement of each student tested was the strongest predictor for initial performance over all three age groups. Reading Level as determined by nationally normed tests does not show a strong correlation. This is misleading because the fourth and seventh-eighth grade scores are reported by grade and month level while the eleventh grade scores reflect national percentile ranks. Because Reading Level scores for the two younger groups were reported similarly, it is important to note that the fourth graders were reading in

English, on average, at Grade 5.7 while the junior high school subjects were reading, on average, at Grade 11.1. It seems likely, given the strong correlation between Reading Class and test performance, that this discrepancy in native language reading proficiency between the fourth grade and junior high groups accounts in large part for the latter's superior performance with the second language.

The researchers acknowledge that differences in the academic standards which schools used to place students homogeneously by ability levels may have confounded their attempt to assess the separate effects of age and reading level on L2 performance. They also acknowledge that the high school students may have scored below the junior high school students because they were under-stimuated by the language-learning activity itself, or preoccupied by the fact that the Hawaiian sessions occurred just prior to New York State Regents Examinations and school-wide final examinations.

Other individual differences, apart from subjects' age, that may account for variations in L2 performance were suggested by regression analyses of a number of variables. Gender had no correlation with performance, but socioeconomic status as indicated by dwelling type and parental occupations did, as did the degree of second language use at home. The single best predictor for gain on the test from Week 1 to Week 2 was the initial score, with the poorest performers in all age groups gaining the most by Week 2. The better the subject read in English and the more time spent studying a foreign language in a school setting, the greater his improvement on Test 2. Considering that only 9 children in the elementary grade group were studying a

foreign language, Hebrew after school, it is remarkable that almost one-fifth of the explained variance in improvement is accounted for by this factor. At the junior high level, only 7 children were not studying a foreign language in school, and they were clearly the worst performers. The final factor in predicting gain was whether a second language was spoken at home, which was especially relevant to the superior performance of 19 junior high students who had a home language.

From the regression analyses, it is apparent that no patterns of individual differences arose that can be explained solely by the subjects age. There was a strong relationship between "cognitive/ academic language proficiency" in the native language and success in second-language learning. In sum, the staircase of expectancies predicted by the Critical Period or Age-Effect hypothesis, which claims that language learning aptitude tends to taper off after the age of about 10, did not materialize in this experiment. These researchers suggest that the dichotomy between age-specific and non-age specific factors in second-language learning may be inherently inaccesible to empirical verification and less significant than a host of other interlinking demographic, cognitive, affective and task factors.

Age-associated performance in English as a Foreign Language.

Early second language learning is a topic of interest in many countries. In the first term of the 1987-88 school year a study was conducted in Saudi Arabia to explore, evaluate and discuss the proposal to introduce English as a foreign language (EFL) in Saudi elementary public schools (Abdan, 1991). At that time, public schools were owned and run by the government, and their students did not study any English

at the elementary school level. English instruction began in the first intermediate grade at the age of 12. Private schools were owned and run by Saudi individuals under the supervision of the government, and generally started EFL in the first elementary grade at the age of 6. Private schools were free to select their English books used at the elementary level but at the intermediate school level they were required to use the same EFL books and curriculum as the public schools.

The study was conducted in response to concerns of educators and the public about improving the level of achievement in English and the common belief that younger children are better language learners. Only two relevant studies had been conducted in the Arab World, both in Jordan but producing conflicting conclusions. Abdan's field study sought to investigate whether there would be any difference in EFL achievement between Saudi private intermediate school students, who had had EFL at the elementary school level, and public intermediate school students, who had not. He used an *ex post facto* or causal-comparative research method. The population of the study consisted of all male Saudi and non-Saudi students of the third intermediate grade in public and private schools in the city of Riyadh. At this grade, public school students would have had the chance to learn EFL for almost three years, justifying a comparison between them and the private school students. The total sample of 160 male subjects was randomly selected from five public and five private schools carefully chosen to ensure similarity in most possible aspects including socioeconomic status.

The instrument of the study was an EFL achievement test containing four sections: reading, grammar, writing and vocabulary. It was designed for this study

based on the language material included in the first and second intermediate grade English books used in both the public and private schools. Speaking and listening skills could not be included because they would require time, equipment and research assistants unavailable to the researcher. Two teachers with long experience in teaching EFL in the Saudi public schools participated in writing the test. They confirmed, by judgment, its validity as did several EFL teachers in the schools where the study was conducted. It was regarded valid by content validity because it was based on the first and second intermediate grades' English books. Test-retest reliability was reflected by a correlation coefficient value of .85 when the test was administered to the same subjects after an interval of six weeks.

The *t*-test statistical procedure was used to perform an analysis of the data collected. The FLES group, students who had studied Foreign Language in the Elementary School, scored significantly higher, with a mean score of 35.56, than the non-FLES group, with a mean score of 26.43. Although the test was meant to measure a beginners' level of achievement in English, the FLES group score was roughly only 70%, indicating to the researcher that they were still at a beginning level in English after nine years of exposure.

When each section of the test was considered individually, both the FLES and non-FLES groups had the same mean score in the reading section, with the researcher concluding that the most likely explanation was that reading, as a receptive skill, is easier to learn at the state of achievement of intermediate school students. It is interesting to note that the greatest differential in scores between the two groups, as

well as the highest score for both groups, was on the grammar subtest, surely reflecting the content emphasis of both school programs and perhaps suggesting an explanation for beginner-level performance of FLES students.

The researcher draws the conclusion that the difference in scores between the FLES and non-FLES subjects in his study cannot be attributed to the age factor. He attributes that difference to length of exposure to EFL in the classroom. He recommends that any proposal to introduce EFL in the Saudi public elementary school be based on the premise of providing greater exposure to EFL and exploiting the affective characteristics of young children rather than on the belief that younger children are faster and better language learners.

Canadian immersion studies.

Since the mid 1970's the number of students enrolled in second language immersion programs for majority language students has increased dramatically in North America, particularly in Canada. In British Columbia, enrollments in French immersion have grown from a few hundred students in three school districts to nearly 19,00 students in thirty-six districts (Day & Shapson, 1988). Two program options are currently available in British Columbia: early immersion, which begins in kindergarten and offers all instruction in French through grade 2, 80% instruction in French in grade 3, and from 50% to 70% in grades 4-7; and late immersion, which begins in grade 6 and offers from 80-100% instruction in French in grades 6 and 7. Extensive research studies have been undertaken to determine the effectiveness of these programs.

These studies can guide decisions regarding the relative merit of early vs. later language learning in other second language settings.

Day & Shapson (1988) report on the first attempt in 1986-87 by British Columbia's Ministry of Education to conduct a provincial assessment of French immersion programs. The objectives of the assessment were:

1. to examine the extent to which students were achieving provincial curricular goals in French reading, listening and speaking
2. to determine student attitudes toward French language and culture
3. to compare immersion students' achievement in provincial assessments of English, reading, mathematics and science with the achievement of students enrolled in regular English programs.

The researchers point out that earlier studies have established that early and late immersion children in all grades have shown levels of achievement similar to children in the regular English program in academic subjects such as mathematics and social studies. With respect to native language development, in the early grades prior to the introduction of English children commonly experience initial lags in literacy skills such as reading, spelling, punctuation. They overcome these lags within one or two years after the introduction of English into the curriculum. Late immersion children perform at least as well as their peers in the regular English program in all aspects of English language arts at whatever grade tested, with no lag to overcome.

Day and Shapson report that investigations of French language development have demonstrated that immersion children attain much higher levels of proficiency in

French than children enrolled in more traditional French second language programs. They tend to attain native-like levels in the receptive language skills of reading and listening comprehension, but are less likely to do so in the productive language skills of writing and speaking. Studies comparing the levels of French language proficiency attained by early and late French immersion students have produced mixed results.

In this study, a French Reading Test and French Listening Comprehension Test were administered to 1508 grade 4 early immerson students and to 718 grade 7 early, and 616 grade 7 late immersion students, which comprised the entire population of students in those programs in the province. A French Speaking Test was administered to 156 randomly-selected early and 126 late immersion students in grade 7 from all but one of the late immersion schools and all but four of the early immersions schools. The Speaking Test was also administered for comparison purposes to 18 Francophone students from one school in Winnipeg, Manitoba, judged to be comparable in socio-economic level.

A university-based team designed the tests and advisory panels of teachers, administrators and lay persons reviewed materials and determined standards of acceptable and desirable performance. The reliabilities on the total tests were .84 for grade 4 and .78 and .79 for grade 7 early and late immersion, respectively. The Listening and Speaking Tests were administered by trained Francophone examiners. The French Reading Test was administered by classroom teachers. Statistical comparisons using the *t*-test procedure were conducted between the performance of early and late immersion students on all measures. Speaking samples, including a

town-planning discussion activity, a story creation activity, and an interview, were designed to measure both the linguistic and communicative dimensions of speech. Detailed error analyses were conducted of the children's correctness in the use of verbs and grammar.

Results showed that early immersion students performed at significantly higher levels than their late immersion counterparts in all five domains and on the total test score of the French Reading test. Mean percent correct was 70% to 61% for vocabulary, 79% to 72% for literal comprehension, 72% to 65% for inferential comprehension, 68% to 58% for critical comprehension, 74% to 67% for graphic materials and 73% to 55% total. Early immersion students also performed significantly higher on Listening Comprehension, at 70% to 55%.

Results in French Speaking revealed no significant differences on the Quality of Discussion, Quality of Information, and Quality of Descriptions scales, but significant differences in favor of the early immersion students on the Fluency and Pronunciation/ Intonation scales. There were no significant differences between the performance of Francophone and any immersion students on the first three scales, but the native-speaking French students performed at a significantly higher level than both immersion groups on both Fluency and Pronunciation/Intonation, a result consistent with other studies by Chun (1988) and Day and Shapson (1987). The frequency of grammatical errors was quite low in the speech of the native French-speakers while both immersion groups made frequent errors ranging from 21%-77%. This finding is also consistent with earlier studies at different grade levels in a number of Canadian

provinces (Day & Shapson, 1987). In contrast to many language learning situations, where the errors are developmental and are eradicated over time, research suggests that many kinds of errors tend to persist in the speech of immersion children and have contributed to their being described as having higher levels of communicative competence than linguistic competence. This is a serious point of concern for French immersion educators in Canada.

Results of comparisons on a Student Questionnaire revealed that early immersion students were more positive in their perceived understanding of French-Canadian culture, had somewhat less anxiety about using French and rated their ability more highly than did the late immersion students. Although the difference on all these measures was small, the findings are consistent with previous research. An interesting finding was that late immersion students were significantly more positive than their early immersion counterparts in their motivation toward learning French. This correlates with a finding by Buteau and Gougeon (1985) which showed that former bilingual program pupils in the town of Mount Royal, Quebec did not have as positive an identification with French language and culture as anticipated. This suggests an attitudinal effect which does not fulfill program goals or argue positively for beginning intensive second language instruction in the very early grades.

In this study and similar studies of other second language learners (Lindholm & Fairchild, 1988; Rafferty, 1986) immersion students performed better on English reading, mathematics and science than the average population of students from districts with immersion programs. Parental influences, student ability and motivation,

and instructional practices may have contributed to this finding. Overall, the results of this assessment indicate that both the early and late immersion programs are effective school options for second language learning. The study does not clearly establish the relative merit of starting age and length of exposure for second language proficiency.

Long-term oral language proficiency

It seems important to determine whether there are specific long term advantages in second language proficiency that can be associated with intensive exposure at an early age. Harley (1987) has investigated this question in a study of the oral second language proficiency in French of three groups of English-speaking classroom learners. One group had begun intensive exposure to French in kindergarten, while the other two groups had started intensive exposure several years later, in grade 7. What is important about this study is that the comparison, involving grammatical, discourse, and sociolinguistic aspects of the students' L2 communicative competence, takes place at the grade 10 level, when the students are close to 16 years old. Earlier Canadian studies comparing early and late immersion students at the secondary level have produced mixed findings. This study indicates that time, or accumulated hours of classroom exposure, is no firm guarantee of greater long-term success for those with an earlier start.

The sample for this study includes three groups of learners whose participation in French language instruction had been optional, implying high motivation to learn the language. Each learner group had a different French program background. The first group, consisting of 12 early immersion students from Ottawa and Toronto, had

received a half-day kindergarten in French followed by one or two years of instruction entirely in French. Thereafter, English was gradually introduced, and from grade 6 on the students had about half their subjects in French and the remainder in English. The second group of 12 late immersion students from Ottawa participated in a regular core French program until the end of grade 6 involving 20 minutes of French per day. In grades 7 and 8 they were immersed in French for 80% of their schooling, and in grades 9 and 10 for 40%. The third group of 11 late extended French students from Toronto generally had 40 minutes of core French per day from grade 4 to grade 6. In grade 7 , 25% of the day was spent in French and 40% in later grades. A norm group of 12 native speakers attending grade 10 in a French-speaking school in Quebec was included in the study. The groups were similar in gender composition and socioeconomic background and demonstrated no significant differences in IQ scores as determined by the Otis Lennon Mental Ability Test, Intermediate Level.

Each student was individually interviewed by a trained native French speaker from Quebec and asked, for example, to provide a recipe, to describe some humorous cartoons, to relate exciting episodes in their lives, and to say what they would do with a large sum of money. The interviews were tape-recorded and later transcribed and scored to assess the use of target verb forms and for oral fluency. A further analysis determined the linguistic contexts in which particular disfluencies occurred. Scoring was done by a near-native speaker of French based on elaborate procedures provided in the report's Appendixes. Scores were checked for inter-rater reliability purposes and compared with those of the native speaking students.

Following the oral interview each student took a sociolinguistic oral test in French based on a series of slides illustrating a variety of social situations. Test scores were based on the students' ability to make requests, offers and complaints that were appropriate to the social setting. Scorers rating on these markers were reviewed by a third independent scorer.

Facility in making time distinctions through verb use was believed to be a significant fluency marker. Results showed that both the early and the late immersion students did not differ significantly from the native speakers on this marker. Compared with the native speakers, all three learner groups were using similarly few periphrastic future forms and all three differed significantly from the native speakers in total and percentage scores. In comparing the way in which the learners and the native speakers expressed future time, it appears that contrary to the initial prediction, the early immersion students were not more native-like than the groups of later learners. All three learner groups made significantly less use of accurate past tense forms than the native speakers, with no significant differences between the early immersion students and the other learner groups. The findings on number agreement in the verb show the early immersion students either at a disadvantage to the other learner groups or not further ahead in relation to the native speakers.

In the area of fluency, there were no significant differences among the learner groups on progressive disfluencies. On most of the types of disfluency anlaysed, the three learner groups produced significantly more disfluencies than the native speakers but did not differ significantly from one another. Results of the sociolinguistic oral test

suggest that, from this perspective, the early immersion students do not appear to have gained an advantage over the other learner groups from their intensive exposure to French at a younger age.

In general, this extremely detailed study found that its hypothesis that the early immersion students would be ahead of the other learner groups in the development of L2 proficiency was not confirmed. The researchers suggest that late immersion and extended French students have benefited on certain variables both from early exposure to written input and from a more code-focused introduction to the French verb system, made possible by their greater cognitive maturity on entry to their respective programs.

They suggest further, that the L2 development of early immersion students may proceed slowly once an initial stage has been reached where the students can satisfactorily master the content and can make themselves understood in the classroom context. Among the observed limitations of content-focused classroom talk, for example, are that it does not necessarily provide young learners with a great deal of exposure to some problematic L2 forms or encourage the productive use of such forms by students. Classroom observations indicate that early immersion teachers "spontaneously use mainly present tense and imperative verb forms when talking to the students and that there is a limited amount of sustained talk by the students themselves" (Harley, 1987, p. 217). While focusing on content goals, teachers do not generally provide simultaneous and regular correction of errors in the linguistic code (Swain & Lapkin, 1989) and students may develop non-native patterns of use. "Early

immersion students in grade 10 still appear to be making some of the same errors in the verb system that have been found in the performance of grade 1 early immersion students" (Harley, 1987, p. 218).

It is suggested that in the area of vocabulary use early immersion students tend to rely largely on high coverage verbs that are congruent with English to get their meaning across as late as grades 5 and 6 and are limited by exposure largely to the vocabulary in their grade-level reading materials. Simple frequency in the naturally occurring second language input in the immersion context is not necessarily a detemining factor for accuracy of use. The findings of the study indicate that while there are some advantages in oral L2 proficiency for an early start in an immersion program, they appear "less widespread than might be anticipated given the much longer exposure to the L2 that the early immersion students have had. Of particular note is the comparable performance on many variables of the extended French students, whose exposure to the L2 has at no time been higher than about 40% of their school program" (Harley,1987, p. 220).

Swain and Lapkin (1989) draw similar conclusions from observations made in early immersion classes. The observations were made in nine grade 3 and ten grade 6 classes in Ontario schools. These classes were each observed and tape-recorded for a full day. The tapes were subsequently transcribed and analyzed from a number of different perspectives. They demonstrate that for much of the day teachers focus on the subject material being taught, asking a lot of questions about something previously presented or read and with a particular answer in mind. Students responses are

usually fairly short and to the point. Correction is mainly directed to content rather language structure. Overall, only nineteen percent of the grammatical errors made by the students were corrected, leaving eighty-one percent ignored by the teachers (Swain & Lapkin). The researchers concluded that the input the students hear is somewhat functionally restricted and that certain important uses of language seem not to occur naturally or frequently in the classroom setting. They also categorized each time a student spoke without interruption and found that, excluding reading aloud, less than fifteen percent of student utterances were greater than a clause in length. Forty percent consisted of minimal one- or two-word responses to teacher initiations. They conclude that simple proximity to a second language from an early age in a classroom setting will not produce native-like communicative competence. They further conclude that older learners may not only exhibit as much success in learning certain aspects of a second language as younger learners, but they can also accomplish this learning in a shorter period of time.

Child and adult learning strategies.

Cain, Weber-Olsen, and Smith (1987) conducted a study to learn whether adults whose native language is English and children whose native language is Spanish would follow the same learning strategies in acquiring a particular linguistic skill, noun gender and its functions, in Spanish. Twenty native Spanish-speaking children from two neighborhood grade schools in Juarez, Mexico were assigned to four linguistic proficiency levels: preschool, first grade, fourth grade and sixth grade. An equal number of University students, all native speakers of English who had

chosen Spanish as a major or minor field of study, made up the L2 group and were also assigned to four different proficiency levels. Subjects were administered five experimental tasks which involved looking at line drawings of imaginary objects and giving responses which required inflection for gender. All tasks were judged appropriate for all age groups. Audiorecorded responses for two randomly selected subjects in each of the groups were later scored by a native adult Spanish speaker. Inter-rater reliability was 98%.

Results showed that, collectively for all five tasks, the linguistically most proficient children and adults, 12 year olds and university graduate students, performed significantly better than the youngest children. There was a trend towards higher scores as both L1 and L2 subjects gained proficiency with the language. The adult L2 subjects were quick to discover patterns for the noun suffixes based on examples given for each task. Adult learners also appeared to make use of greater capacity for memory retention. Adults relied heavily on a semantic strategy and a majority made correct responses, whereas the least linguistically proficient children showed reliance on a phonological strategy from Spanish and were led by this to make incorrect responses. The researchers conclude that early learners overgeneralize syntactic rules until they acquire full adult use of those rules.

This study provides additional empirical evidence which contradicts the traditional assumption that children are "better" at language learning than adults and that there are universally similar cognitive strategies defining developmental procedures for first and second language acquirers. It suggests that a learner's level

of cognitive development and previous linguistic experience may influence success on linguistic tasks.

Relationship of native and second language proficiency.

It has been suggested that proficiency in one's native language can facilitate learning in a second language and that this argues for a delayed introduction of second language instruction. Studies investigating the progress of immigrant children to the U.S. toward becoming bilingual seem relevant to this question. Torres and Fischer (1989) investigated the relationship between the native language proficiency of 4,700 Spanish-speaking limited English proficient (LEP) students when they first entered the New York City schools and their success rates in acquiring English proficiency in the following four years. The students were in grades kindergarten through 7 and scored in the upper or lower quartiles on the Spanish Language Assessment Battery. Results indicate that for Spanish speakers English acquisition is strongly related to native-language proficiency, a factor which predicts not just the likelihood of becoming proficient in English but how long it will take for this to happen as well. The researchers conclude that their analyses indicate that being fluent in one's first language increases the probability of becoming proficient in a second. They recommend continued concurrent instruction in the native language to assure transferable literacy.

In another longitudinal study, Torres and others (1989) examined how long it took 23,044 newly arrived LEP students of varied linguistic and cultural groups to lose their entitlement to bilingual and ESL classes. Loss of entitlement occurs when

students become proficient to a level equivalent to that reached by the bottom fifth of their mainstream classmates on a test of English proficiency. Findings showed that although most students in this population reach this point after four years, the students in the lower grades are more likely to exceed the minimum level for eligibility and do so more quickly than older students. This would seem to argue for the more effective language learning ability of younger students. Older students, however, are dealing with more linguistically complex subject content, consider ESL classes "remedial," and many either drop out or simply leave school before acquiring proficiency.

Collier (1987a) also conducted a study to determine how strongly age on arrival of limited English proficient (LEP) students influences the rate of acquisition of cognitive academic proficiency in the second language of English. She studied 1,548 LEP students from East Coast public high schools. These students were from over 100 different countries and spoke 75 languages. They were in the lower-middle economic level in the U.S. but middle-upper level in their home countries. They were all at or close to academic grade level in their native language, but had almost no proficiency in English. They were all schooled only in English after their arrival in the U.S. Results showed that the fastest achievers were children entering at ages 8-11, and that even these students required 2 to 5 years to reach the 50th percentile on the SRA test. Arrivals at age 12-15 had the most difficulty, taking 6 to 8 years to reach grade level norms. The researcher suggests that if academic work is not continued in the first language while these students are acquiring a second language, there is not enough time left in high school to make up the lost years of academic instruction.

LEP students who entered at age 5-7 were 1 to 3 years behind the performance level of their LEP peers who entered at 8-11 when both had the same length of residence. This group scored significantly below their predicted level of achievement, with the only known variable distinguishing them from the older arrivals being a lesser amount of L1 schooling. These results support Cummins' hypothesis cited in Collier (1987a) that a common underlying proficiency in the native language makes possible the transfer of cognitive academic proficiency to another language. This conclusion calls into question the hypothesized ease of second language acquisition of very young learners.

In a summary of research on second language learning, Collier (1987b) further concludes that older students are faster and more efficient language learners than younger students. This advantage diminishes after the first year for adults, but remains for older children and adolescents. She states that adolescents past puberty are likely to retain an accent in the second language but otherwise are capable of developing complete L2 proficiency. When schooled in the second language, students in the 8-12 age range may be the most advantaged acquirers of school skills. They have some first language skills to transfer and still have time to make up the years of academic instruction lost while acquiring the second language.

Effects of lower-order skills, cognitive confusion, extra-curricular, and attitudinal factors.

Three researchers sound cautionary notes which can apply to early foreign language instruction. Koda (1992), who examined students attempting to learn

Japanese with the goal of developing both oral and written communication skills, concluded that efficient, well-developed, lower-level verbal processing skills are essential for performance in reading comprehension tasks. Initial differences in those skills are predictive, to a large extent, of "the subsequent development of reading proficiency" in the second language (p. 503). She also states that the writing system should be included in the beginning stages of instruction as an additional representational system which enhances the memory for speech. She believes that her data affirms that cognitive resources available at any one time are limited and that processing breakdowns may occur when task requirements exceed individual processing abilities. Her conclusions make the argument for a delay in foreign language instruction until well-developed processing skills exist for both oral and written language.

Downing (1984) reports that readiness tests given to children in bilingual villages in Papua New Guinea showed that children learning to read in an unfamiliar language were more confused than were children who had never had literacy instruction. In New Guinea there are 700 different mother tongues but English is the official language of instruction in state schools. Children from a new village preschool which delays entry into the English schools until age 9 and teaches beginning reading in the local native language were compared with children from the regular school system. Children taught to read in their mother tongue were significantly superior to those taught in the second language of English on a number of subtests. The researcher concludes that "mother tongue instruction taps the child's existent lingustic

awareness," to begin reading in a second language "causes cognitive confusion by introducing exemplars that do not fit the child's developing concepts of speech elements" (p. 368).

Housen and Beardsmore (1987) analyzed the multilingual acquisition processes among children at the European School of Brussels, which was designed primarily for children of civil servants working in the European school community and where at least seven languages are the basic vehicle of instruction. The school uses an L1 maintenance program with additive bi- or multi-lingualism incorporated. Every student is expected to become at least bilingual. Although objective measures of proficiency are difficult because of lack of standardized tests across languages, the study claims that the strong language committment has no detrimental effects on academic achievement as gauged from results on the final European Baccalaureate examination on which 90% of pupils have been successful since the founding of the school. It does not explore the relationship between basic ability level of its students and this success rate. The researchers also claim better results than Canadian immersion programs and state that in the former the wider environment does not sufficiently push learners in the active use of the L2 or give the them much chance to interact with native-speaking peers in the target language. Through the application of Schumann's Acculturation Model to one case study, the researchers seek to establish the more significant relative importance of the extra-curricular factor to the age factor.

Slaughter & Watson-Gageo (1988) studied the first year of a Hawaiian language kindergarten immersion program, and Lindholm & Fairchild (1988) studied a Spanish immersion program in the San Diego City Schools. Both emphasize the importance of attitudinal factors of students, parents, and teachers in determining student success in second language studies. Both also reveal that participating students performed at or above national norms in all subject areas.

Snow's study (1988) of the second language retention of 55 students who completed a seven-year elementary Spanish immersion program in Culver City, California indicates that children in this program performed academically at a level equal to or higher than their peers who received all their elementary school education in English, and were generally at grade level on standardized Spanish achievement tests as well. Some language loss occurred soon after program termination, with greatest loss in productive skills of writing and speaking. Findings based on factor analysis suggest that attitudinal predisposition including interest in foreign language, encouragement from home, pride in work, and willingness to become or be like a member of another ethnolinguistic group influenced the extent to which students retained their Spanish skills after the immersion program's conclusion at grade 6. The findings suggest that intensive early language programs do not guarantee proficiency without continued involvement in the learning process beyond elementary school.

Summary of Literature Review Findings

Evidence regarding the value of an early start in foreign language learning remains contradictory despite the fact that competent researchers in many countries continue to pursue a definitive answer. In the real world, isolating age from other variables is extremely difficult. In second language, and even in some foreign language, environments there may be differential exposure to the target language outside the classrooms. In absolute terms, the difficulty of making judgments across different age levels is compounded by the fact that younger learners have less distance to travel in achieving comparability with native speaking peers than do older learners.

According to Ellis as cited in Richards and Nunan (1992), a fairly clear pattern emerges if the route or order in which skills are acquired, the rate, and the level of success are kept separate:

1. Starting age does not affect the route of second language acquisition. Differences in the acquisitional order do not seem to be the result of age.
2. Starting age does affect the rate of learning. Where grammar and vocabulary are concerned, adolescent learners seem to do better than either children or adults, when the length of exposure is held constant.
3. Both number of years of exposure and starting age affect the level of success. The number of years' exposure contributes to the overall commmunicative fluency of the learners; starting age influences the quality of pronunciation.

If subsequent research supports the notion of a pre-pubertal critical period for language learning, it will suggest that foreign language instruction should begin before the onset of puberty. However, comparative studies do not presently show in absolute terms that younger necessarily means better and so argue against an imperative need to begin foreign language instruction at the beginning of the elementary school years. Until and unless research clearly establishes that imperative, educators and parents will continue to make decisions regarding foreign language instruction based upon values, judgement, and common sense, much as they do for most other areas of curricular study.

Method

In an attempt to examine the relationship between starting age of foreign language study and competence by the end of high school, a correlation analysis was done using scores from two standardized tests.

Subjects.

The population of this study consisted of 26 students from a private high school in the San Francisco Bay Area who graduated either in 1991 or 1992. The study sample included both male and female students from an upper-middle or upper class socioeconomic background who had attended local private elementary schools where they began the study of French. The common instructional approach had been a FLES model with instruction provided for a specific period of time weekly and increasing at intervals through the grades. A comparison of teacher effectiveness, materials, and methodology of early instruction was beyond the scope of this study.

The number of years of French study prior to the freshman year of high school was determined and the students divided into two groups of 13 each. One group, labeled Early Starters, began the study of French between the kindergarten and fourth grade years and the other group, labeled Late Starters, began between the fifth and eighth grade years. All students continued their study of French in high school. Students selected for the study were only those for whom the high school had test scores on both the College Board's Advanced Placement Examination and the ETS French Achievement Test.

Instrument.

Two test instruments were used. The first was the Educational Testing Service (ETS) French Achievement Test designed for students who have studied the language for three or four years during junior high and high school. However, students with two years of strong preparation in French are encouraged to take the test, which is used by some colleges for course placement. It is nationally normed and offered on four dates during the academic year at test centers across the country. The test is not adjusted on the basis of years of study and is independent of specific textbooks, grading procedures, and methods of instruction, therefore allowing for variation in language preparation.

The French Achievement Test evaluates reading ability in French in three areas: precision of vocabulary, structure, and reading comprehension. It takes one hour of testing time and consists of 85 multiple-choice questions requiring a wide-

ranging knowledge of the language. *Vocabulary-in-context* questions comprise approximately 30 % of the examination and test lexical items representing different parts of speech and some basic idoms within culturally authentic contexts. *Structure* questions, 40 % of the test, measure the ability to select an appropriate word or expression that is grammatically correct within a sentence or an entire paragraph. *Reading comprehension* questions, 30 % of the test, check the understanding of such points as main and supporting ideas, themes, and setting of a passage. Selections are drawn from fiction, essays, historical works, and newspaper and magazine articles.

The other test instrument was the Advanced Placement Examination in French Language available from ETS. This test is intended for qualified students in the final stages of their secondary school training who have completed a minimum of one academic year's course work in advanced language. It is approximately two and one-half hours in length and is administered throughout the world each May. It attempts to evaluate level of performance in the use of the language, both in understanding written and spoken French and in responding orally and in writing in correct and idiomatic French.

Listening and reading are tested in the multiple-choice section; writing and speaking are tested in the free-response section. The portion of the examination devoted to each skill counts for one-fourth of the final grade. With the exception of directions, French is used exclusively both in the test materials and in the student responses. Oral student responses are recorded on cassette tapes. Use of dictionaries or other reference works during the examination is not permitted.

Listening skills are tested in two ways. First, candidates are asked to listen to a series of remarks or questions recorded on tape and to select from among the four choices printed in the examination booklet the most appropriate or probable reply that a listener would make. In the second portion, students listen to recorded dialogues or brief monologues and are asked questions on the tape about what they have just heard.

The *reading* section comprises several prose passages followed by multiple-choice questions on their content. Some questions testing knowledge and understanding of grammatical structure are included. In the *writing* section, students are asked to demonstrate grammatical proficiency by filling in omitted words or verb forms in a series of sentences. They are asked to show their ability to express ideas in written French by writing a 40-minute essay on a given topic. The essays are evaluated for appropriateness and range of vocabulary, grammatical accuracy, idiomatic usage, organization and style.

The *speaking* part of the examination consists of two kinds of exercises. In the first portion, students record on cassettes their responses to a series of questions or directions. They are given 15 seconds to reply. Answers are scored for fluency, appropriateness, grammatical correctness, and pronunciation. In the second portion, students tape-record their recounting of a story suggested by a series of drawings.

Examinations are graded by a group of 1,700 college and secondary school teachers under the direction of a Chief Reader in the field. Precautions are taken to ensure fairness and reliability. The readers' judgments on the essay questions are

combined with the results of the multiple-choice questions and the total raw scores are converted to a five-point scale.

Procedure and Results.

The Pearson Product-Moment Correlation method was used to determine the relationship between starting age of French language study and proficiency as indicated by standardized test scores. Results showed that there was no systematic relationship between number of years of study and language proficiency by the end of high school for Early Starters on either the AP Test or the Achievement Test. There was also no systematic relationship for Late Starters on the Achievement Test. There was a moderate inverse relationship between years of study and AP Test scores for the Late Starters, with the fewer the years of classroom study, the better the score.

Table 1

Correlations Between AP and Achievement Test Scores and Number of Years of French Language Study

Cohort Groups	AP Test	Achievement Test
Early Starters (Grades K-4)	.083	-.005
Late Starters (Grades 5-8)	-.564	-.038

For the group of Late Starters, the two students scoring highest on both tests lived and studied in France during their Junior year of high school. Each of these students also had only one year of French study in the United States prior to high school, although the mean number of years of study before high school for the Late Starters was three years. These two students both scored 5 on the AP, with a group mean of 3, and 76 and 77 on the Achievement test, with a group mean of 62. Only one student in the group of Early Starters scored a 5 on the AP, with a group mean of 3. The student's Achievement score was 72 with a group mean of 64. The number of years of study before high school for this student was seven, with a group mean of eight years.

This finding suggests that cultural/linguistic immersion may be a stronger determinant of linguistic proficiency than years of classroom study, and indicates a question meriting further research. Considerations of the effects of student ability, motivation, extra-curricular experiences, quality of instruction, native-language proficiency, and parental support were beyond the scope of this study.

Conclusions and Discussion

Results of the present study support those of a number of previous research projects which revealed little relationship between the age of beginning second language study and the eventual level of proficiency attained. Early Starters did not outperform Late Starters despite, on average, three times as many total years of study of the target language. Results do not support the Critical Theory Hypothesis which claims an optimum age for second language acquisition during the early years. The

strongest relationship discovered between starting age and second language proficiency was an inverse one suggesting an advantage for students who begin foreign language study after elementary school.

There may be many important reasons for beginning second language study in the early grades. Some reasons stated in the research literature are that it makes children more linguistically and culturally aware, that it fosters multicultural and global understanding and broadens the child's viewpoints, that it develops a language learning interest and forms favorable attitudes for serious language study at a later date. Some linguists believe that early second language instruction improves other cognitive skills, results in higher mental maturity, and positively affects general school achievement. These claims deserve systematic investigation and may form a justifiable basis for a decision to add early second language study to the elementary school curriculum. The present study indicates that such a decision cannot reasonably be based on the assumption that it will necessarily result in greater proficiency in reading, writing, or speaking the second language by the end of high school.

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